

**Five-Year Review
Of
Canada-Wide Accord on Environmental
Harmonization**

Submitted to:
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EXECUTIVE SUMMARY

The Canadian Council of Ministers of the Environment (CCME) works to promote cooperative and coordinated approaches to environmental management issues which are interjurisdictional in nature, or otherwise of common concern. Through consensus-based efforts, the CCME works to ensure that the effective use of their pooled resources achieves high environmental quality for all Canadians.

In January of 1998, Canada-Wide Accord on Environmental Harmonization and three Sub-Agreements were signed by the Council of Ministers, with the exception of Quebec. (It is noted that the Province of Quebec, while not a signatory to the Accord, has undertaken analogous efforts on environmental standards as those covered by the agreement, and has also developed working interjurisdictional arrangements on issues such as monitoring and reporting, environmental assessment, and inspection and enforcement). The Sub-Agreements signed at that time were:

- The Canada-Wide Environmental Inspections Sub-Agreement
- The Environmental Assessment Sub-Agreement
- The Canada-Wide Standards Sub-Agreement

In the fall of 2000, the CCME also endorsed “The CCME Statement of Principles to Guide Cooperative Arrangements on Environmental Monitoring and Reporting” pursuant to the Accord and its broad objectives of:

- Enhancing environmental protection
- Promoting sustainable development, and
- Achieving greater effectiveness, efficiency, accountability, predictability and clarity of environmental management for issues of Canada-wide interest

The Accord itself contained a provision for a two-year review of its progress, and this was completed in June, 2000. That review concluded that the work emanating from the agreement was in its early stages, and that the Accord “...is having a positive impact on environmental management in Canada. At this stage, achievements are principally process related and the effects are mainly apparent within and among the government agencies involved...”. This two-year review was done with the expectation that this more comprehensive five-year review would be undertaken, with the objectives being to:

- 1 Identify results from the Accord, with a particular emphasis on activities with a direct effect on the environment; and based on those facts,
- 2 Evaluate progress towards the desired outcomes set out in the Accord, sub-agreements and implementation agreements that were put in place as a result of the Accord (“did we achieve what was intended?”).

The various activities undertaken as a result of the Accord are all aimed at having beneficial effects on the environment; however, different stakeholders undoubtedly view the likelihood of direct effects in different ways. Those activities which foster improved working relationships, more efficient use of resources (be they government, industry, or environmental organizations), and more timely, more effective decision-making, are generally transparent to the public and the media. Nevertheless, these agreements, which are formed pursuant to the Sub-Agreements on Environmental Assessment and the Sub-Agreement on Inspections and Enforcement, ensure that those jurisdictions involved are working cooperatively for improved environmental management within the context of sustainable development.

The Sub-Agreement on Canada-Wide Standards is one for which the environmental benefits are clear to all stakeholders. During the initial five-year period of the life of the Accord, standards have been developed, and implementation initiated for the following pollutants:

- 1 Benzene: A two-phase emission standard for this substance, a non-threshold toxicant, was developed which called for a 30% reduction in national emissions (based on 1995 levels) by the end of the year 2000, as well as a further 6-kilotonne reduction by 2010. In addition, best available pollution prevention and control techniques are to be applied to relevant new and expanding facilities.

The first phase reduction of emissions has been achieved and exceeded (38-40% reduction). Data on benzene in ambient air have indicated a reduction of some 35% between 1995 and 2000.

- 2 Mercury: This naturally-occurring substance may be transformed in the environment into methylmercury which is bioaccumulative, and particularly toxic to humans and wildlife. The CCME has endorsed a number of mercury standards and pollution prevention initiatives which deal with emissions from base metal smelters, waste incinerators (municipal, medical, and hazardous wastes), reductions in the use of mercury in lamps sold in Canada, and the capture of dental amalgam waste.

The industry sector initiatives have implementation timelines varying between 2003-2008. Reductions in mercury from lamps and dental amalgam wastes are already being realized in a number of jurisdictions, and, indeed, mercury concentrations in wastewater have been shown to be decreasing in certain instances as a result.

- 3 Particulate Matter and Ozone: These pollutants have been shown to be linked to significant health and environmental effects, and the CCME has endorsed ambient standards for both, primarily based on human health protection. These are:
 - A CWS for PM_{2.5} of 30 ug/m³, 24 hour averaging time by 2010
 - A CWS for ozone of 65 ppb, 8-hour averaging time by 2010

The PM_{2.5} refers to 'fine particulate'; however, CCME recognizes that health effects are also associated with PM_{10-2.5}, the 'coarse fraction', and that a CWS for this fraction may be useful at a later date. The actions taken to reduce PM_{2.5} will also reduce PM_{10-2.5} levels as an ancillary benefit.

Particulate matter and ozone precursor implementation plans responding to the CWS are developed or under development in Canadian jurisdictions, and there is significant ambient monitoring in place for both (although the particular fraction of particulate being monitored is not always the 'fines'). Although it is too early to see ambient results and trends, particularly given the transboundary flow (U.S. to Canada) of these pollutants and their precursors, reducing these emissions can only have an ameliorative impact, including the potential impact on standard-setting in the United States. As part of the CWS, the notions of "Keeping Clean Areas Clean" and "Continuous Improvement" were endorsed, so that areas which meet the standards will still undertake measures to reduce emissions.

- 4 Dioxins and Furans: These compounds, due to their environmental persistence, toxicity, and ability to accumulate in biological tissues are slated for virtual elimination under the Canadian Environmental Protection Act, the Federal Toxic Substances Policy, and the CCME Policy for the Management of Toxic Substances. The CCME has endorsed atmospheric emission standards for the following sectors:

- Hog fuel boilers burning salt laden wood
- Waste incinerators (municipal, medical, hazardous, sewage sludge)
- Steel manufacturing electric arc furnaces
- Iron sintering plants

A further CWS dealing with conical combustion of municipal waste is expected to be endorsed in the fall of 2003, thus completing standards for the five sectors which account for approximately 65% of the national atmospheric releases of dioxins and furans.

Although ambient data for these compounds is sparse, the National Pollutant Release Inventory indicates that emissions have already been reduced by some 15% between 1998 and 2000. Major sources in Ontario and British Columbia have achieved significant reductions, and Newfoundland and Labrador has developed a waste management plan which includes closure of all 41 conical burners by 2008.

- 5 Petroleum Hydrocarbons in Soil (PHC): Some 60% of contaminated sites in Canada involve PHC, giving rise to a number of environmental concerns, including human and environmental toxicity, fire/explosion hazard, movement through soil to air and/or water, and impairment of soil processes such as water retention and nutrient cycling. The CCME endorsed a Canada-Wide Standard for PHC in Soil in order to promote a consistent, effective approach to managing these contaminated sites across Canada. This is a remedial standard which specifies consistent methods and outcomes, including consistent human and environmental health goals for differing land uses. Individual governments have either adopted the process as set out in the CWS, or are adapting/considering adapting their existing remediation processes to incorporate the features of the CWS.

The Environmental Assessment Sub-Agreement's objectives are generally to ensure careful consideration of environmental effects prior to decision-making, to ensure greater efficiency and effective use of public and private resources where more than one jurisdiction is legally required to assess a proposed project, and to establish accountability and predictability by delineating roles and responsibilities of the government jurisdictions. The sub-agreement contemplates bilateral agreements between governments, and specifically sets out the notion of a 'lead' party for instances requiring the parties to apply environmental assessment procedures to the same project. This is considered to be an important step forward in cooperative measures. Bilaterals are presently in place between the Federal Government and the Provinces of Manitoba, Saskatchewan, Alberta and British Columbia. Discussions are progressing with four other jurisdictions. The bilaterals pursuant to the sub-agreement provide more certainty with respect to timelines, decision points and the lead role than past cooperative efforts. In addition, the environmental management expertise of two jurisdictions is applied to complex undertakings.

The Inspection and Enforcement Sub-Agreement was developed to assist in achieving a consistent, high level of regulatory compliance in Canada, and to provide a framework for enabling cooperative work sharing where appropriate, cooperative priority-setting, and an efficient and cost effective approach to these activities. Although no specific agreements have been established pursuant to this initiative, virtually every province/territory jurisdiction reports that they have both formal and informal agreements on inspection and enforcement activities with neighbouring jurisdictions, the Federal Government, or both. Most of these agreements are said to adhere to the spirit of the Accord's sub-agreement, and it may be anticipated that specific agreements will unfold over the next few years.

The CCME Statement of Principles to Guide Cooperative Arrangements on Environmental Monitoring and Reporting was established to: assist in ensuring adequate environmental information was available for decision-making; enhance scientific accuracy and consistency; promote comparability across jurisdictions; improve communication with all parties; and maximize efficient and effective use of available resources.

There have been many 'work-sharing' monitoring agreements in the past, many of which are said to adhere generally to the objectives and principles enunciated in this initiative. New agreements are in the process of being established which will directly utilize the framework set out. For example, a memorandum of understanding, based on the "Statement of Principles" with regards to the National Air Pollution Surveillance Network has been drafted (for use between the Environment Canada and the relevant provincial/territorial agencies), and is being considered by the CCME. The "Statement" is seen as a useful framework by many jurisdictions, and should be of significant value as the public demand for increased and improved environmental information continues to grow. Furthermore, as the implementation of the Canada-Wide Standards moves forward, the monitoring and reporting burden will grow.

In summary, it is evident that the Accord and its various sub-agreements have had a positive impact on environmental management in Canada. Cooperation between jurisdictions on all levels (professional, policy, and management) has been increasing in the environmental field, and the results in terms of improved environmental standards/quality are just now becoming clear. The Canada-Wide Standards process also benefited from the ability to coordinate efforts on emission reductions for several pollutants which, in certain instances, may arise from the same sources. This improved decision-making is important for both environmental protection, as well as for infrastructure and financial planning by industry. The involvement of all stakeholders in the developmental processes has been both significant and taxing for all parties; however, the results in terms of both the standards set, as well as the voluntary initiatives undertaken appear to warrant the effort. A number of jurisdictions did note the value of the Accord, while also expressing concern over the workloads imposed in the development and implementation phases. Future directions should ensure that the implementation of the initiatives undertaken to date does not suffer as the result of undertaking laudable but resource-intensive issues too soon.

At the same time, there are a number of issues which should be cause for continuing, rigorous oversight of the Accord by the CCME. For example, the original goal for a mercury emission standard for coal-fired generation had been the spring of 2002. This has now been delayed until 2005, due to the complexity of the issue, as well as the timing of parallel efforts taking place in the United States. While the reasons for the delay may be entirely understandable, the establishment of realistic goals, and meeting them, is crucial to the credibility and utility of the Accord. Similarly, the transparency of the implementation of agreed-upon issues (such as standards and agreements) is vital, and is an area which should be given further attention. While the implementation of the CWSs is apparently reasonably moving forward, there is no easily available method to ascertain this. Indeed, ambient and emissions-based monitoring efforts will likely need to receive further attention in the future.

While the Accord has been successful in eliminating a number of sources of inter-jurisdictional conflict, there undoubtedly remains room for improvements which would benefit all Canadians and their environment. Nonetheless, it serves as a significant and useful framework for future initiatives within CCME.

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1.0 INTRODUCTION

The Canadian Council of Ministers of the Environment (CCME) is comprised of those Ministers responsible for environmental affairs in each of Canada's Provincial and Territorial Governments, and the Federal Government. The CCME works to promote effective intergovernmental approaches to a variety of environmental issues, aimed at improving and safeguarding environmental quality for all Canadians.

The CCME is perhaps best-characterized as a decision-through-consensus body; however, any decision/policy/agreement which is adopted cannot be imposed on any dissenting jurisdiction.

1.1 Description of the Accord

In January of 1998, the CCME, with the exception of Quebec, ratified the "**Canada-Wide Accord on Environmental Harmonization**", which is intended to provide a framework and mechanism to enable governments, working in partnership, to achieve the highest level of environmental quality for all Canadians. The stated objectives of the Accord are to:

- 1 Enhance environmental protection
- 2 Promote sustainable development
- 3 Achieve greater effectiveness, efficiency, accountability, predictability and clarity of environmental management for issues of Canada-wide interest.

The Ministers envisioned a cooperative approach which would ensure that Canada's environmental management needs would be addressed through the most effective use of their joint capacities and expertise, and, in particular, would address existing gaps and weaknesses in environmental management. In agreeing to the Accord, the Ministers also committed to a number of principles, which are:

- 1 Those who generate pollution and waste should bear the cost of prevention, containment, cleanup or abatement (polluter pays principle);
- 2 Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation (precautionary principle);
- 3 Pollution prevention is the preferred approach to environmental protection;
- 4 Environmental measures should be performance-based, results-oriented and science-based;
- 5 Openness, transparency, accountability and the effective participation of stakeholders and the public in environmental decision-making is necessary for an effective environmental management regime;
- 6 Working cooperatively with Aboriginal people and their structures of governance is necessary for an effective environmental management regime;
- 7 Canada-wide approaches on how to meet the objectives of this Accord will allow for flexible implementation required to reflect variations in ecosystems and local, regional, provincial and territorial conditions;

- 8 Decisions pursuant to the Accord will be consensus-based and driven by the commitment to achieve the highest level of environmental quality within the context of sustainable development;
- 9 Nothing in this Accord alters the legislative or other authority of the governments or the rights of any of them with respect to the exercise of their legislative or other authorities under the Constitution of Canada;
- 10 Legislation, regulations, policies and existing agreements should accommodate the implementation of this Accord;
- 11 The environmental measures established and implemented in accordance with this Accord will not prevent a government from introducing more stringent environmental measures to reflect specific circumstances or to protect environments or environmental values located within its jurisdiction;
- 12 This Accord and sub-agreements do not affect aboriginal or treaty rights;
- 13 All Canadians should be confident that their environment is respected by neighbouring Canadian jurisdictions.

The CCME, as part of the Accord, determined that a review of its effectiveness would take place two years after ratification, including a determination of its future course. The review was completed in June, 2000, and was termed a “directional progress report”, given the short period of time since adoption of the Accord. Nonetheless, the review documented progress on a number of initiatives, including:

- 1 The adoption of the Annex to the Accord to further define accountability and stakeholder participation commitments.
- 2 Initiation of joint action with Aboriginal groups towards development of a protocol on Aboriginal involvement in CCME activities.
- 3 Completion of a Sub-Agreement on Environmental Assessment and negotiation or implementation of bilateral agreements between various jurisdictions.
- 4 Adoption of the Canada-Wide Standards Sub-Agreement and the development of standards on particulate matter and ground level ozone, benzene, mercury, petroleum hydrocarbons in soil, and dioxins and furans.
- 5 Development of proposed sub-agreements on environmental inspections and enforcement, and a statement of principles on environmental monitoring and reporting.

This two-year review, with input from a variety of stakeholders, indicated that the Accord was having a “positive impact on environmental management in Canada”, although the short time period since ratification meant that achievements were principally process-related. The stakeholders concluded that the success of the Accord would hinge on the realization of actual environmental achievements prior to developing further framework agreements, increasing the effectiveness of stakeholder and Aboriginal involvement in relevant harmonization activities, integration of Canada-Wide Standards (CWS) to preclude contradictory efforts and ensure optimal efficiencies, and the focusing of efforts in order to avoid overtaxing the capacity of regulators, stakeholders and Aboriginals.

1.2 Objective of the Five-Year Review

The objective of this 'Five-Year Review' of the Accord is to examine the extent to which progress has been made towards its goals, not to undertake a philosophical review of the concept of harmonization itself. Pursuant to the findings of the Two-Year Review, the strategic goal of environmental quality is the prime reference point for activities related to the Accord, although a review of the extent to which various 'management' agreements have been implemented is also considered. The latter accomplishments have a more indirect effect on environmental quality achievements.

More specifically, the review is intended to:

- 1 Identify results from the Accord, with a particular emphasis on activities with a direct effect on the environment; and based on those facts,
- 2 Evaluate progress towards the desired outcomes set out in the Accord, sub-agreements and implementation agreements that were put in place as a result of the Accord ("did we achieve what was intended?").

The scope of this review includes specific results - both quantitative and otherwise - that have stemmed from the Accord through government or stakeholder actions taken under:

- 1 The Inspections and Enforcement Sub-Agreement;
- 2 The Environmental Assessment Sub-Agreement;
- 3 The Canada-Wide standards Sub-Agreement; and
- 4 The CCME Statement of Principles to Guide Cooperative Arrangements on Environmental Monitoring and Reporting.

2.0 THE ACCORD AND ITS SUB-AGREEMENTS - ACCOMPLISHMENTS

2.1 Inspection and Enforcement Sub-Agreement

In April 2001, the Council of Ministers endorsed the “Inspections and Enforcement Sub-Agreement”. This agreement replaced the original “Canada-Wide Environmental Inspections Sub-Agreement”, in recognition of the close linkages between inspection and enforcement activities in environmental management regimes. The objectives of this sub-agreement are:

- 1 To achieve a consistent, high level of compliance with environmental protection laws across Canada, and
- 2 To serve as an enabling framework for future bilateral and multilateral implementation agreements that:
 - i. Deliver a range of inspection and enforcement activities across Canada that are fair, consistent and predictable;
 - ii. Provide a cooperative work sharing approach for inspection and enforcement activities related to environmental protection laws, where appropriate;
 - iii. Identify a process to set priorities for inspection and enforcement programs; and
 - iv. Provide an efficient and cost effective approach to inspection and enforcement activities in Canada.

The agreement explicitly recognizes the continuing responsibilities which jurisdictions continue to bear for their respective environmental legislation. However, it provides a framework by which activities may be undertaken by whichever government is best situated, considering such criteria as:

- Scale, scope and nature of the environmental issue
- Human, financial and equipment resources available
- Previous and/or continuing experience/expertise with the issue
- Physical proximity

In keeping with the accountability and transparency principles of the Canada-Wide Accord on Environmental Harmonization, this sub-agreement stipulates that any implementation agreement(s) entered into by two or more jurisdictions be subject to a public consultation process prior to being finalized.

2.2 Environmental Assessment Sub-Agreement

Environmental assessment provides a means to integrate environmental factors into project planning and decision-making. It usually necessitates the preparation of an environmental assessment report by the proponent of a proposed project, and is both a multi-disciplinary and a public process.

At the time of the endorsement of the Canada-Wide Accord on Environmental Harmonization, this sub-agreement was also endorsed by the Ministers. The stated objectives of the sub-agreement are:

- 1 To ensure that the environmental effects of proposed projects are carefully considered before decisions are taken by governments.
- 2 To achieve greater efficiency and the most effective use of public and private resources, where assessment processes involving more than one jurisdiction are required by law, through a single environmental assessment and review process for each proposed project.
- 3 To establish accountability and predictability by delineating the roles and responsibilities of the federal, provincial and territorial governments.

The sub-agreement contemplates the negotiation of bilateral agreements in order to achieve implementation, and develops the notion of a 'lead' party for any given assessment wherein "...more than one party must make a decision or issue an approval which must by law be preceded by an environmental assessment". Criteria for determining the 'lead' party are set out in the sub-agreement.

The sub-agreement does not apply in areas where an environmental assessment process exists pursuant to a land claim or self-government agreement. The parties are to share the principles of the sub-agreement with Aboriginal people when negotiating environmental assessment regimes pursuant to land claim and self-government agreements.

2.3 Canada-Wide Environmental Standards Sub-Agreement

The Ministers' objectives for the Canada-Wide Environmental Standards Sub-Agreement are:

- 1 To provide for the continual development, improvement, and attainment of priority Canada-wide environmental standards (CWS) for environmental quality and human health across Canada, consistent with the vision and principles of the Accord; and
- 2 To provide for a cooperative, co-ordinated federal, provincial and territorial approach for:
 - Identifying Canada-wide environmental priorities;
 - Developing Canada-wide Environmental Standards for the identified priorities;
 - Agreeing on the actions required and obligations of governments for attaining the agreed-upon Canada-wide Environmental Standards;
 - Effective, efficient and harmonized implementation; and
 - Accountability to Canadians for meeting obligations and attaining agreed-upon Canada-wide Environmental standards.

The Sub-Agreement makes it incumbent upon the Council of Ministers (COM) to establish priorities for the development of CWSs, which may include:

- 1 Canada-wide ambient environmental standards for the quality of air, water, soil, biota, other media, and for other components of ecosystems as well as ecosystem themselves, and
- 2 where governments agree, Canada-wide standards may also, where appropriate, and/or in support of the objectives of this sub-agreement include:
 - discharge specifications on the quantity and/or quality of a release of a specific type/source of pollution; and

- product and/or waste specifications on the limits of a substance and/or the environmental performance for a commercial product.

Although the development procedure for each standard may be unique in certain respects, they are all based on sound science, and include consideration of socio-economic factors and technical feasibility. The CWSs generally contain:

- a numeric limit (e.g., ambient, discharge, or product standard);
- a timetable for attainment; and
- a framework for monitoring progress and reporting to the public.

In addition, each standard is accompanied by a list of preliminary actions aimed at attaining the standard.

In anticipation of the ratification of the Accord, CCME had developed, with input from various stakeholders, a list of candidates for the COM's consideration, and six candidates were approved for development at the time of adoption of the Accord and the CWS Sub-Agreement (Jan. 1998). These include:

- i. Benzene gaseous emissions
- ii. Ambient particulate (PM_{2.5})
- iii. Ground-Level Ozone (O₃)
- iv. Mercury emissions
- v. Petroleum Hydrocarbons in Soil
- vi. Dioxins and Furans

2.3.1 Benzene

Benzene was selected as one of the initial six priorities for the development of a Canada-Wide Standard on the basis of its designation as a non-threshold toxicant; that is, a substance for which there is considered to be some probability of harmful effects at any level of exposure. Available data also suggests that benzene is a human carcinogen.

In June, 2000, the COM endorsed a CWS for benzene which was termed 'Phase 1', as well as the further development of emission reduction targets to be termed 'Phase 2'. In September 2001, the COM endorsed 'Phase 2' for benzene.

The CWS for benzene are:

For Phase 1: A national target of a 30% reduction in total benzene emissions (based on 1995 emission inventory levels) by the end of the year 2000.

For Phase 2: For existing facilities addressed under Phase 1: A further 6-kilotonne reduction in benzene emissions (based on 1995 emission inventory levels) to be realized by the end of year 2010 from Phase 1 benzene emissions reduction initiatives which continue beyond the end of year 2000 (end of Phase 1 CWS);

AND

For new and expanding facilities: minimize benzene emissions by the application of best available pollution prevention and control techniques, as recognized in sector-specific Best Management Practices and jurisdictional regulations, or as developed through other air issue programs.

The actions for achieving Phase 1 for benzene were based primarily on emission reductions from five significant sectors, these being:

- 1 Oil and Gas
- 2 Transportation
- 3 Petroleum Refining
- 4 Chemical Manufacturing
- 5 Steel Manufacturing

In addition, further benzene emission reductions were anticipated as co-benefits of the implementation of other CWSs (notably PM & Ozone, and Dioxins and Furans) as applied to certain sources, such as residential wood combustion, wood products industries, transportation, and steel.

The implementation of Phase 2 for benzene consists of:

- 1 Follow-up on existing initiatives from Phase 1 that will contribute a further 6-kilotonne reduction in total benzene emissions (based on 1995 emissions inventory levels), and the promotion and application of Best Management Practices to new and existing facilities;
- 2 Determining and tracking ancillary emission reductions of benzene achieved through other CWS initiatives, as well as improved sector-specific emission data; and
- 3 Monitoring and reporting as described in an Annex for Phase 2 and review of monitoring and reporting requirements for Phase 1.

2.3.2 Mercury

Mercury is a naturally occurring substance, which is transformed through biological processes to methylmercury, a persistent substance which bioaccumulates in the food chain and is particularly toxic to humans and wildlife.

Sixty percent of the mercury entering the ecosystem is from man-made or anthropogenic sources. Anthropogenic mercury is more of an issue for certain parts of Canada, particularly the north and east. Elevated levels of mercury in the environment and in fish tissue have led to commercial fish advisories and fish consumption restrictions in a number of areas in Canada.

While the source/receptor (causal) links between specific mercury emission sources and mercury accumulations in any one location have not been established conclusively, as mercury is a proven toxic substance which can affect humans and wildlife, Canada-wide Standards have been developed based on the precautionary principle, consistent with the principles of both the Accord and the Canada-Wide Environmental Standards Sub-agreement, and the direction of various national and international policies and agreements.

In June 2000, the CCME Council of Ministers endorsed the first of a number of CWSs for mercury. The first CWS was aimed at two of the three sectors which contribute the bulk of mercury emissions in Canada, these being the base metal smelting industry, and the waste incineration sector. The third most significant sector is that of coal-fired electricity generation, for which a CWS is under development. In June, 2003, the CCME's Deputy Ministers issued a notice indicating their agreement that discussions and consultations need to proceed with regard to setting a Canada-Wide Standard by 2005 which reduce mercury emissions from the coal-fired electric power generation sector by 2010, to explore the national capture of mercury from coal burned in the range of 60-90% (*Provincial applications of the national target or standard may vary, with some jurisdictions doing more or less depending on the control technologies for different coal types – particularly lignite.*), and to align with US standards for mercury. They further indicated that the standard will apply to existing and new plants. CCME expects coal-fire electric power generation to take early actions to reduce mercury emissions in Canada, and will consider recognition for early actions. CCME will consult with stakeholders in the development of the standard. As part of this effort, CCME has launched "The Canadian Uniform Data Collection Program (UDCP) for Mercury from Coal-fired Electric Power Generation".

Mercury CWS for Base Metal Smelting:

For existing facilities: application by all primary zinc, lead and copper smelters of best available pollution prevention and control techniques economically achievable to achieve an environmental source performance (atmospheric emission) guideline of 2g Hg/tonne total production of finished metals. Existing facilities will be expected to make a determined effort to meet this standard by 2008.

For new and expanded facilities: application of best available pollution prevention and control techniques to minimize mercury emissions throughout the life-cycle of the minerals in question to achieve an environmental source performance (atmospheric emission) guideline of 0.2g Hg/tonne production of finished zinc, nickel and lead, and 1g Hg/tonne of finished copper, and consideration of a mercury offset program to ensure no "net" emission increases occur (i.e., A new facility will recover and retire an amount of mercury equivalent to their annual emission.). New facilities will be required to design for and achieve compliance immediately upon full scale operation. Jurisdictions will evaluate changes and upgrades to existing facilities to ensure they constitute determined efforts.

Mercury CWS for Waste Incineration:

For existing facilities application of best available pollution prevention and control techniques, such as a mercury waste diversion program, to achieve a maximum concentration in the exhaust gases from the facility as follows:

Municipal waste incineration*	> 120 tonnes/year	20 ug/Rm ³	(annual testing)
	< 120 tonnes/year	20 ug/Rm ³	(determined efforts)
Medical Waste Incineration	> 120 tonnes/year	20 ug/Rm ³	
	< 120 tonnes/year	40 ug/Rm ³	
Hazardous Waste Incineration		50 ug/Rm ³	
Sewage Sludge Incineration		70 ug/Rm ³	

Existing facilities will endeavour to meet the standards on the following schedule:

Municipal waste incineration	2006
Medical waste incineration	2006
Hazardous waste incineration	2003
Sewage sludge incineration	2005

For new or expanding facilities of any size, application of best available pollution prevention and control techniques, such as a mercury waste diversion program, to achieve a maximum concentration in the exhaust gases from the facilities as follows:

Municipal waste incineration*	20 ug/Rm ³
Medical waste incineration	20 ug/Rm ³
Hazardous waste incineration	50 ug/Rm ³
Sewage sludge incineration	70 ug/Rm ³

Any new or expanding facility will be required to design for and achieve compliance immediately upon attaining normal full scale operation, compliance to be confirmed by annual stack testing or an equivalent emission rate as confirmed by an audit of a waste diversion program.

*Conical waste combustors are under separate consideration since the proposed Mercury and Dioxins and Furans CWSs cannot be achieved with these burners (except by the reduction of certain inputs). Newfoundland will review the use of conical waste combustors by conducting an inventory and estimating their remaining life expectancy. This information will be used in consideration of a phase-out strategy. (See Section 3.3.2)

Mercury CWS for Mercury-Containing Lamps:

In April 2001, the CCME endorsed a Canada-Wide Standard for Mercury-Containing Lamps. The CWS for mercury-containing lamps takes a pollution prevention approach to reducing environmental releases of mercury, by reducing mercury content of lamps sold in Canada. This approach is aimed at reducing emissions at four stages in the life-cycle of lamps: during lamp manufacturing; during transport; during landfilling; and during incidental incineration.

The Canada-Wide Standard for Mercury-Containing Lamps is a 70% reduction by 2005 and 80% reduction by 2010 in the average content of mercury in all such lamps sold in Canada, using 1990 as the baseline.

Mercury CWS for Dental Amalgam Waste:

In September 2001, the CCME endorsed a Canada-Wide standard on Mercury for Dental Amalgam Waste. The CWS is aimed at reducing the release of mercury-containing waste to sewage systems when replacing or shaping old dental fillings. The approach taken by the CWS is to adopt the use of amalgam traps by Canada's dentists as the best management practice. (New fillings are increasingly made of synthetic resins and other amalgam substitutes.)

The Canada-Wide Standard for Dental Amalgam Waste is the application of "best management practices" to achieve a 95% national reduction in mercury releases from dental amalgam waste discharges to the environment, by 2005, from a base year of 2000.

2.3.3 Particulate Matter and Ozone

Extensive scientific studies indicate that there are significant health and environmental effects associated with these pollutants. Particulate matter and ozone are linked to serious health impacts including chronic bronchitis, asthma, and premature deaths. Other effects of these pollutants include reduced visibility in the case of PM, and crop damage and greater vulnerability to disease in some tree species in the case of ozone.

In June 2000, the CCME Council of Ministers endorsed Canada-Wide Standards for Particulate Matter (PM) and Ozone. In taking this step, Ministers recognized the fact that in jurisdictions highly impacted by transboundary air pollution from the United States, achieving the CWSs would be strongly dependent on reductions of this transboundary contribution. In addition, high levels of PM and ozone that may occur through natural events (such as forest fires, natural formation and stratospheric intrusion) would need to be considered in assessing achievement of the CWSs. The CWSs for these compounds are based on short term exposures, which are primarily concerned with human health protection. It was recognised that seasonal or annual average targets may be useful additions to the CWSs at a later date, if an assessment of vegetation protection, visibility impairment, material damage or other adverse effects indicates such a need.

The CWS and related provisions for PM are:

- A CWS for PM_{2.5} of 30 ug/m³, 24 hour averaging time, by year 2010

Achievement to be based on the 98th percentile ambient measurement annually, averaged over three consecutive years.

This standard is more than twice as stringent as the 1997 U.S. Standard of 65 ug/m³. The European Union has deferred the adoption of a PM_{2.5} standard.

The CWS and related provisions for ozone are:

- A CWS of 65 ppb, 8-hour averaging time, by 2010

This O₃ standard is some 25% lower than new U.S. standard of 80 ppb, 8-hour average, and is comparable to the European Union standard of 60 ppb, 8-hour average to be achieved by 2015.

Achievement to be based on the 4th highest measurement annually, averaged over three consecutive years.

Specific provisions related to transboundary flow are:

“Communities for which jurisdictions demonstrate (i) that continued exceedance of the CWS levels is primarily due to transboundary flow of PM and ozone or their precursor pollutants from the U.S. or from another province/territory, and (ii) that “best efforts” have been made to reduce contributions to the excess levels from pollution sources within the jurisdiction, will be identified in reporting as “transboundary influenced communities” that are unable to reach attainment of the CWS until further reduction in transboundary air pollution flow occurs. Demonstration of transboundary flow influence will be a shared responsibility of the federal government and the affected province/territory, and demonstration of best efforts will include measures in both provincial/territorial and federal implementation plans.”

CCME is also committed to completing a review of the PM standard by 2005. The CWS for PM is presently based on PM_{2.5} (fine fraction), since this will provide the greatest health benefit. Nonetheless, health effects are also associated with PM_{10-2.5} (coarse fraction), and CWSs related to this may be useful at a later date. The actions taken to reduce PM_{2.5} will also reduce PM₁₀ levels as an ancillary benefit.

2.3.4 Dioxins and Furans

Polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs), commonly known as dioxins and furans, are toxic, persistent and bioaccumulative, and result primarily from human activity. Due to their environmental persistence and capacity to accumulate in biological tissues, they have been slated for virtual elimination since 1998 under the *Canadian Environmental Protection Act*, the Federal Toxic Substances Policy, and the CCME Policy for the Management of Toxic Substances.

The presence of dioxins and furans in the Canadian environment can be attributed to three principal sources: point source discharges to water, air and soil; contamination from in situ dioxins and furans; and loadings from long-range transboundary air pollution (LRTAP).

In May 2001, the CCME endorsed dioxin and furans CWSs for waste incineration and pulp and paper boilers which burn salt-laden hogged fuel. In March, 2003, CWSs for steel arc furnaces and for sintering plants were endorsed by the Council of Ministers. A proposed CWS for dioxins and furans from the conical combustion of municipal waste is expected to be considered by the

Council of Ministers in the fall of 2003. These five CWSs address sectors that account for approximately 65% of the national releases of dioxins and furans to the atmosphere. The CCME Dioxins and Furans Development Committee is considering mechanisms to address other sectors which contribute to the remaining portion of emissions. (See report "Status of Activities Related to Dioxins and Furans Canada-Wide Standards", February 2003.)

http://www.ccme.ca/initiatives/standards.html?category_id#146

Dioxins and furans Canada-Wide Standards

Hog Fuel Boilers burning salt laden wood:

- 1 Dioxin and furan emissions will be less than 100 pg/m³ TEQ for new boilers constructed after the effective date of this standard.
- 2 Dioxin and furan emissions will be less than 500 pg/m³ TEQ for all existing boilers by 2006.

"New" means a total replacement including firebox, heat transfer surfaces and air emission control equipment.

Waste incinerators:

For new or expanding facilities of any size, application of best available pollution prevention and control techniques, such as a waste diversion program, to achieve a maximum concentration in the exhaust gas from the facility as follows:

1	Municipal waste incineration	80 pg I-TEQ/m ³
2	Medical waste incineration	80 pg I-TEQ/m ³
3	Hazardous waste incineration	80 pg I-TEQ/m ³
4	Sewage sludge incineration	80 pg I-TEQ/m ³

This figure represents the lowest possible statistically significant measurable amount.

For existing facilities, application of best available pollution prevention and control techniques, to achieve a maximum concentration in the exhaust gases from the facility as follows:

1	Municipal waste incineration	
	> 26 Tonnes/year	80 pg I-TEQ/m ³ (annual testing)
	< 26 Tonnes/year	80 pg I-TEQ/m ³ (determined efforts)
2	Medical waste incineration	
	>26 Tonnes/year	80 pg I-TEQ/m ³ (annual testing)
	<26 Tonnes/year	80 pg I-TEQ/m ³ (determined efforts)

3	Hazardous waste incineration	80 pg I-TEQ/m ³
4	Sewage sludge incineration	100 pg I-TEQ/m ³

Based on determined efforts in working towards virtual elimination, existing facilities will be required to meet the standards on the following schedule:

1	Municipal waste incineration	2006
2	Medical waste incineration	2006
3	Hazardous waste incineration	2006
4	Sewage sludge incineration	2005

By way of comparison, the European Union has a "Council Directive" on waste incineration of 100 pg TEQ/Nm³.

Steel Manufacturing Electric Arc Furnaces

- 1 New and Modified Furnaces: Dioxin and furans emissions shall be less than 100 pg ITEQ/RM³ from any new or modified steel manufacturing EAF.
- 2 Existing Furnaces:
 - Phase 1: Dioxin and furans emissions shall be less than 150 pg ITEQ/Rm³ at all existing steel manufacturing EAFs by 2006.
 - Phase 2: Dioxin and furans emissions shall be less than 100 pg ITEQ/Rm³ at all existing steel manufacturing EAFs by 2010.

Iron Sintering Plants

It is noted here that the process of iron sintering results in the formation of dioxins and furans which, to some extent, may be adsorbed or condensed on fine particulate emissions. Thus the CWS deals with two matters of interest: emission limits for dioxins and furans, and corresponding expected emission levels for particulate matter based on the predicted performance of technologies which can meet the emission limits.

- 1 New or Expanding Iron Sintering Plants: Dioxin and furan stack emissions shall be less than 200 pg/m³ TEQ, and as a result of achieving this limit particulate emissions should correspond to a level of less than 20 mg/m³ for new iron sintering plants constructed or existing plants expanding their production capacity after the effective date of this standard.
- 2 Existing Iron Sintering Plants:
 - Phase 1: Dioxin and furan stack emissions shall be less than 1350 pg/m³ TEQ, and as a result of achieving this limit particulate emissions should correspond to a level of less than 50 mg/m³ for all existing iron sintering plants by 2002.

- Phase 2: In addition, dioxin and furan stack emissions shall be less than 500 pg/m³ TEQ for all existing iron and sintering plants by 2005. The Phase 1 particulate emission level would be expected to continue to be met.
- Phase 3: Dioxin and furan stack emissions shall be less than 200 pg/m³ TEQ, and as a result of achieving this limit, particulate emissions should correspond to a level of less than 20 mg/m³ for all existing iron sintering plants by 2010.

A report prepared for Environment Canada ("Background Technical Discussion Paper on the Release and Control of Dioxins/Furans from the Steel Sector") indicates that the best available emission control technology for new and existing sintering plants would be 200 and 500 pg/m³ respectively. The same document indicates that the analogous limits for new and existing electric arc furnaces would be 100 and 150 pg/m³ respectively.

2.3.5 Petroleum Hydrocarbons in Soil

Petroleum hydrocarbons (PHC) are widely used in Canada. Unfortunately, when released to the soil environment through spills, losses, etc., these products, whether raw feedstocks, refined fuels or lubricants, cause a number of problems. These include fire/explosion hazard, human and environmental toxicity, movement through soil to air or water, odour, and impairment of soil processes such as water retention and nutrient cycling.

About 60% of Canada's contaminated sites involve PHC contamination. The management of these sites has varied considerably across Canada, and often lacked a sound scientific basis. This results in over- and under-management, resulting in excessive remediation costs, or in continued risk to human and/or environmental health.

In April 2001, the CCME Council of Ministers endorsed the Canada-Wide Standards for Hydrocarbons (PHC) in soil, in order to provide a consistent, effective approach to managing PHC-contaminated sites across the country. The PHC CWS is a remedial standard, and does not specify timelines that jurisdictions must follow in remediating PHC contaminated sites. Rather, it specifies consistent methods and outcomes for assessment and management of such sites. However, the CWS requires jurisdictions to commit to timelines for implementation of this consistent assessment and management approach. Since environmental issues related to PHC release to soil are principally limited to intra-jurisdictional effects, the CWS Sub-Agreement provides that specific measures undertaken by each government to meet this Standard are at the discretion of each jurisdiction.

The remedial process standard deals with methodologies and outcomes for assessment and management of contaminated sites. It incorporates consistent human and environmental health protection goals for differing land uses. The technical documents may be accessed at the CCME web site http://www.ccme/initiatives/standards.html?category_id=8

2.4 CCME Statement of Principles to Guide Cooperative Arrangements on Environmental Monitoring and Reporting

In October 2000, the Council of Ministers endorsed the “CCME Statement of Principles to Guide Cooperative Arrangements on Environmental Monitoring and Reporting”, the objectives of which were:

- 1 To facilitate informed decision-making by jurisdictions, stakeholders and the public that leads to the protection of human and ecosystem health and safety in Canada; and
- 2 To guide the negotiation of arrangements between federal, provincial, and territorial governments and other interested parties to cooperatively deliver monitoring and reporting that:
 - is effective and efficient
 - meets scientific standards for accuracy and consistency
 - facilitates comparisons and analysis across regions and jurisdictions, and
 - communicates information to partners, stakeholders and the public in a timely manner.

The arrangements envisioned by the Ministers could encompass the broad spectrum of environmental monitoring, as well as data management and quality assurance mechanisms. In particular, the “Statement of Principles” addresses the issue of public reporting, sharing of information (where not legally encumbered), and transparency. The document addresses the need to have standardized techniques which play a significant part in most issues covered by the Canada-Wide Accord on Environmental Harmonization, and facilitates interjurisdictional agreements aimed at effective, efficient monitoring and reporting.

3.0 ASSESSMENT OF PROGRESS ON THE ACCORD

3.1 Inspection and Enforcement Sub-Agreement

Many jurisdictions have reported collaboration with Environment Canada (as well as other federal agencies, and neighbouring jurisdictions) on inspection and enforcement activities. However, only one agreement was drafted specifically related to this sub-agreement. Manitoba and Environment Canada negotiated an agreement related to their respective roles in PCB storage management; however, Manitoba is considering phasing out its regulation, so the need for the agreement was obviated.

Alberta was not a signatory to this particular sub-agreement; however, Alberta does have two agreements with the federal government dating back to 1994 that are consistent with the intent of the sub-agreement. These are related to the control of deposits of deleterious substances under the Fisheries Act, and an equivalency agreement for the control of toxic substances. As was mentioned by other jurisdictions which collaborate with the federal government on inspection and compliance activities, the substance of their agreements (formal or informal) are essentially analogous to the Accord’s sub-agreement. Saskatchewan does have an agreement with the Canadian Nuclear Safety Commission for the ‘Regulation of Health, Safety and the

Environment at Saskatchewan Uranium Mines and Mills', which was executed in February 2003.

Given the desire by all parties for consistency, effectiveness and efficiency in inspection and enforcement activities, it may be that further agreements will unfold over the next few years.

3.2 Environmental Assessment Sub-Agreement

The Environmental Assessment Sub-Agreement has resulted in a number of bilateral agreements between the federal government and provincial governments, with a number still under negotiation.

The following jurisdictions have signed bilaterals with the federal government pursuant to this sub-agreement:

- 1 Manitoba (signed November 2000)
- 2 Saskatchewan (signed November 1999)
- 3 Alberta (signed June 1999)
- 4 British Columbia (interim agreement)

Discussions /negotiations are well-advanced with Newfoundland and Labrador, Nova Scotia, Ontario, and the Yukon. Preliminary discussions are also being held with New Brunswick.

The Federal Government is also contemplating the need to make adjustments to existing agreements in light of amendments being made to the Canadian Environmental Assessment Act (Bill C-9). They have indicated that "None of these adjustments would be inconsistent with the principles and requirements of the Sub-agreement. In fact they are intended to strengthen the basis for environmental assessment cooperation."

As with the sub-agreement on inspections and enforcement, and the statement of principles for monitoring and reporting, which facilitate cooperative actions, the various jurisdictions have indicated that for the most part, cooperation on environmental assessment was positive prior to the sub-agreement. However, certain changes, such as the notion of a 'lead party' have been an important step forward. Joint assessments have been held in Canada over a number of years; however, the bilaterals pursuant to the sub-agreement give more certainty with respect to timelines, decision points, and the lead role.

3.3 Canada-Wide Standards Sub-Agreement

3.3.1 Benzene

The national emission reduction target for benzene as established for Phase 1 (30% national emission reduction 1995-2000) has been met, and, indeed has been exceeded. The actual % reduction has been of the order of 38-40%. These are national averages, and reductions in certain jurisdictions may be somewhat higher or lower. For example, benzene emissions have been reduced in Alberta by approximately 50% since 1995. These reductions have taken place across the country, through voluntary action by the source sectors, through cleaner fuel regulations, as well as through a mixture of regulation and policy direction by the various

jurisdictions (Emission reductions by approval requirements are considered to be equivalent to direct regulation.). Emission reductions by sector have ranged from 20-80% as compared to the early 1990's.

This decrease in emissions has been matched by a similar decrease in ambient concentrations of benzene, which, at urban monitoring sites, have shown a reduction of approximately 60% between 1991 and 2001, and some 35% between 1995 and 2000. The National Air Pollution Surveillance Network (NAPS) has shown that benzene concentrations in rural areas (which are presently approximately 30-40% of urban area concentrations) have not shown as distinct a trend, although there does appear to be some reduction in concentrations. One would expect ambient levels in the rural environment to have national emission reduction impacts masked somewhat by 'background' concentrations.

3.3.2 Mercury

The CWSs for emission reductions for mercury have had a considerable impact to date in virtually all jurisdictions, since many of the sources are common to all or most of them. For example, Environment Canada has signed a memorandum of understanding (MOU) with the Canadian Dental Association in which the association agrees to fulfil the CWS for dental amalgam waste (a 95% reduction by the year 2005). In addition, many of the provinces/territories are working with the dental societies in their own jurisdictions on both voluntary reductions, as well as regulated reductions. Given the fact that waste amalgam has generally been disposed of directly to municipal sewerage, some Canadian cities have adopted, or are considering adopting their own regulations. Toronto has put such a bylaw in place, and has subsequently monitored a reduction in mercury concentrations at four wastewater treatment plants.

Environment Canada has also worked with the lamp manufacturing industry association, and a voluntary commitment is now in place to meet the CWS for a 70% reduction in average mercury content by 2010 for all lamps sold in Canada. In addition, several jurisdictions are demonstrating leadership through initiatives aimed at government purchasing policies (low mercury content lamps), and, as with other such initiatives, will likely be emulated to some extent by other sectors (industry, business, consumer). There are some jurisdictions reporting that governments are undertaking the recycling of mercury from fluorescent lights; however, this does not appear to be widespread. Some jurisdictions have adopted voluntary programs to encourage the prevention of mercury entering the environment. For example, Alberta has a voluntary program to recycle mercury-containing lamps, and is part of a national voluntary program to remove mercury switches from vehicles as they are recycled at scrap yards.

Most jurisdictions have already put in place regulatory/approval requirements for waste incinerators in order to meet the relevant CWS for mercury. The Province of Newfoundland and Labrador has adopted a waste management strategy which will see the closing of approximately 41 conical waste combustors by 2008, with an expected annual reduction of almost 100 kg of mercury (in addition to the co-benefits of reducing particulate and dioxin and furan emissions). Other measures which have been taken, or are anticipated, are improved source separation of mercury-containing waste, and the closure of a number of medical waste incinerators.

The CWS for the base metal smelting sector has been met in some jurisdictions (for example, in New Brunswick, both the base metal smelter and the two medical waste incinerators currently meet their respective CWS requirements). In some other cases, 'determined efforts' are being noted; however, it is unclear whether or not those efforts will result in achieving the numerical target(s).

Those utilities with coal-fired generating facilities have been working within their respective jurisdictions in order to provide necessary background data on mercury emissions. This work is being done in contemplation of the CWS to be developed for such facilities. An assessment is underway to better understand the co-benefits which particulate and sulphur dioxide controls may impart to mercury reductions.

3.3.3 Particulate Matter and Ozone

Particulate matter and ozone, along with sulphur dioxide, are likely the pollutants which are most widely discussed by the Canadian public. Federal, provincial and municipal monitoring networks have been operating for decades, and air quality indices based on these pollutants have long been in the public eye.

The CWSs for $PM_{2.5}$ and O_3 are the only ones which are ambient concentration levels, and the development of implementation plans to achieve (and more than achieve) these targets is complex and multi-faceted. However, actions to reduce both fine particulate emissions as well as ozone (and particulate) precursors have already been initiated, or, indeed, the momentum has been augmented in most jurisdictions. The notions of 'Keeping Clean Areas Clean' (KCAC) and 'Continuous Improvement' (CI), as enunciated in the Canada-Wide Standard plan are key parts of every jurisdiction's developing implementation strategy.

The Federal Government has focussed its efforts on vehicle emissions, clean fuel regulations, consumer products, and the strengthening of its roles in both science and monitoring. Emission models indicate substantial reductions in precursors are expected from on-road vehicles by the year 2010. In addition, the issue of trans-boundary flow of these pollutants, and their precursors is an important consideration. The Ozone Annex to the Canada-US Air Quality Agreement was negotiated in 2000, and mandates significant reductions in NO_x and VOC emissions from 18 northern states beginning in the year 2004.

The provinces/territories are developing implementation plans appropriate to the CWS and to their own unique mix of sources. For example, Alberta used a stakeholder process to develop its "Guidance Document for the Management of Fine Particulate Matter and Ozone in Alberta" and has put in place a "Management Framework" as a multi-tiered response plan in order to address the KCAC and CI policies. Large sources in many jurisdictions have been required to monitor fine particulate matter emissions in order to facilitate the development of appropriate strategies.

Ozone has been extensively monitored for decades. Total suspended particulate matter has been monitored for years; however monitoring of $PM_{2.5}$ is relatively new and has been increasing in recent years. It was incorporated first into Ontario's Air Quality Index and now is also incorporated into Alberta's Air Quality Index. It will take some time before one can assess

the impact of the actions taken in response to the CWS. Indeed, the impacts will be masked to some degree by the trans-boundary flow of pollutants.

3.3.4 Dioxins and Furans

The ambient data for dioxins and furans is quite sparse, and levels are such that any changes would only be seen over the long term. Newfoundland and Labrador indicated that some ambient measurements performed found very low quantities. Nonetheless, the implementation of the CWS will see substantial reductions from some of the more significant sources of dioxins and furans. The NPRI indicates that emissions of dioxins and furans were reduced from 190g/year in 1998 to 160 g/year in 2000. In Ontario, three major sources have already significantly reduced dioxin and furan emissions, and this trend is one which is continuing across Canada. The Federal Government has a number of its own (relatively small) waste incinerators, and has a plan in place to meet the requirements of the CWS.

In Newfoundland and Labrador for example, the closure of 41 conical waste combustors (municipal waste incineration) by 2008 will remove a targeted source completely (as well as a significant mercury and particulate source). Other municipal waste and biomedical waste incinerators in all jurisdictions will either be shut down, or be upgraded to meet the CWS. These are being addressed through the development of full 'implementation plans' or through the imposition of limits by changes in regulatory and/or approval structures. Integration of the requirements with those imposed by the mercury CWS has been the norm. In some cases cited, approval requirements are advancing the deadlines set in the Canada-Wide standard.

The CWS requirement for boilers using salt laden hog fuel is an issue which only impacts facilities in British Columbia. Stack emission data for dioxins and furans has been required twice/year until 2003, and will now be required once/year. The industry is working with the Province on a voluntary basis, and six of the eight implicated facilities presently meet the CWS, and the remaining two are working to upgrade their plants.

The base metals smelting sector emissions for dioxins and furans have been estimated at 3g/yr (2% of the national release inventory). Environment Canada is planning to incorporate limits for dioxins and furans into a comprehensive environmental code of practice for the sector.

3.3.5 Petroleum Hydrocarbons in Soil

It would appear that the CWS has either been adopted into the various provincial/territorial procedures for remediation of contaminated sites, or existing procedures have been modified as necessary to incorporate differences.

The Atlantic Provinces have worked in partnership for a number of years using a 'Risk Based Corrective Action' (RBCA) approach. They have now modified RBCA (RBCA v2) in order to meet the CWS in an equivalent manner. In addition, spill/loss prevention programs have been augmented over recent years. New Brunswick is considering a contaminated site regulation which would require third party certification of clean-up, thus reducing the substantial workload for government.

Manitoba has adopted the CWS, while Saskatchewan has developed an implementation plan, but is reserving action due to the complexity of the standard. Alberta has developed and applied an implementation plan, operating through a number of guidelines. The province has also incorporated a quality assurance program for laboratories doing associated work. Ontario is in the process of implementing recently passed legislation on Brownfields development. As part of this process Ontario is considering options for PHCs including implementing the CWS for PHCs in soils. The Yukon will amend their contaminated site regulation to include the CWS, while noting that they anticipate increased workload due to the standards complexity.

British Columbia has referred the CWS to a Science Advisory Board, wishing to investigate whether or not their existing remediation tools provide equal or better environmental protection. They also indicated that the private laboratories in the province have concerns with the precision of the analytical methods involved, as well as with their cost.

3.4 CCME Statement of Principles to Guide Cooperative Arrangements on Environmental Monitoring and Reporting

It would appear that the 'Guide' is serving its function well, in that most jurisdictions report that monitoring and reporting agreements negotiated, or being negotiated, are respecting the principles put forth. A proposed Memorandum of Understanding between Environment Canada and every provincial/territorial environmental agency for the National Air Pollution Surveillance Program is adhering to the spirit and intent of the "guide". One jurisdiction reported that "The principles provided an excellent guide in helping to structure the agreements in a consistent manner.". Others indicate that they are utilising the document in structuring many agreements which relate to monitoring, data-handling and reporting.

It was noted that increased environmental monitoring is generally necessary, and the establishment of appropriate roles using the 'Guide' will be helpful, although it is still too early to have had a major impact.

4.0 CONCLUSIONS

In the "Two-Year Review of Canada-Wide Accord on Environmental Harmonization" (June, 2000), the statement was made that "The Harmonization Accord is having an impact on environmental Management in Canada", and that "At this stage, achievements are principally process related". Three years later, it is evident that the Accord and its Sub-Agreements are yielding substantial environmental returns, though in some instances (for example, where the target date for a CWS is 2010), it is still too early to assess environmental outcomes.

One has only to consider the direct impacts which the Canada-Wide Standards program is having, both in terms of standard development, and in early emission reduction actions taken as a response. Although it is difficult to postulate what would have occurred without the Accord, it is difficult to imagine that six important national standard-setting processes would have been initiated, much less completed. Substantial efforts were made by the standard development committees to involve stakeholders in their deliberations, and the resulting emission and ambient standards are rigorous, and stand up to international comparisons. These standards and the actions taken and contemplated for the future respond well to the vision of the CCME

Council of Ministers - a high level of environmental quality for all Canadians. The development process has required a significant contribution of time and resources from governments, and stakeholders, and will undoubtedly be cause for reflection as the CCME considers its path forward with respect to Canada-Wide Standards. However, the results appear to substantiate the value of the process, both in arriving at rigorous standards, as well as precipitating voluntary actions by both industry and individuals.

The standard-setting exercise established by CCME used the expertise and resources from all jurisdictions to best effect - and contributed as well to the professional development of the participants, offering a benefit to their respective agencies. The resultant standards belie the concern that the Harmonization Accord would result in the "*lowest common denominator*". As indicated in Section 2.3 the standards are fully comparable to other measures internationally.

Those sub-agreements which facilitate process and bilaterals are no less important, since they lead to maximizing the joint capacities of the jurisdictions, an issue of particular importance to the high-intensity work environment experienced by all of the participating agencies. This will be of particular importance, since the standard implementation plans do impose additional, albeit worthwhile, workloads on agency staff.

The issue of monitoring and reporting will undoubtedly increase in importance as the need to assess the value of certain actions becomes more critical. Even today, our knowledge of the state of the ambient environment is limited with respect to certain pollutants covered by the Canada-Wide Standards. The vision of cooperation and most efficient use of resources is an important one. Furthermore, the public continues to become more aware of environmental issues, and more demanding of accessible data, and data interpretation. Many of the Canada-Wide Standards have implementation dates some years in the future, and the benefits of the expected emission reductions (and other implementation modes) will only be truly evident in some cases if appropriate and adequate monitoring regimes are in place.

One issue which has been raised by several agencies in discussing the Accord, is the need for an 'off-ramp' should the parties become aware that an issue which they have been negotiating, or indeed agreed to, will, for one reason or another not be suited to this process. It is often difficult to redirect a 'project' once started; however, it would be worthwhile to make that option viable so that a more appropriate course of action could be considered.

The CCME has often been regarded by other analogous Councils as one worth emulating. Although the "CCME Canada-Wide Accord on Environmental Harmonization" may not achieve every goal set out by the Council of Ministers; it is not an immediate cure for all intergovernmental issues or friction concerning the environment. However, it has undoubtedly made a significant contribution to environmental management in Canada. Perhaps the Accord may be best thought of as an example of the benefits of cooperative action, in terms of resource efficiency, and desirable outcomes and as a framework for continued cooperation. Future CCME initiatives need not necessarily always be done under the banner of the Accord in order to recognize and make use of its beneficial characteristics.